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# UNITED STATES DEPARTMENT OF AGRICULTURE

## AGRICULTURAL MARKETING SERVICE

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### TITLE 7—AGRICULTURE

#### Chapter I—Agricultural Marketing Service (Standards, Inspections, Marketing Practices), Department of Agriculture

##### PART 53—LIVESTOCK, MEATS, PREPARED MEATS, AND MEAT PRODUCTS (GRADING, CERTIFICATION, AND STANDARDS)

##### ESTABLISHMENT OF OFFICIAL U. S. STANDARDS FOR GRADES OF CERTAIN PORK CARCASSES AND CERTAIN SWINE

On April 27, 1956, a notice of rule making was published in the FEDERAL REGISTER (21 F. R. 2724) regarding the establishment of official United States standards for grades of sow carcasses and official United States standards for grades of slaughter sows, under sections 203 and 205 of the Agricultural Marketing Act of 1946 (7 U. S. C. 1622 and 1624), as amended by Public Law 272, 84th Congress.

After due consideration of all relevant material submitted pursuant to the notice, and under the aforesaid sections of the Agricultural Marketing Act of 1946, official United States standards for grades of sow carcasses and official United States standards for grades of slaughter sows are hereby established, to appear in 7 CFR Part 53, respectively, as follows:

§ 53.144 *Application of standards for grades of sow carcasses.* (a) The standards for grades of sow carcasses are based on (1) differences in yields of lean cuts and of fat cuts and (2) differences in quality of cuts. There are rather uniform differences in these characteristics from one grade to another. The U. S. No. 1 grade has about the minimum degree of finish required to produce cuts of acceptable palatability. The four major trimmed lean cuts—hams, loins, picnics, and butts—normally make up more than 48 percent of carcass weight. The U. S. No. 2 and U. S. No. 3 grades have successively higher degrees of finish resulting in lower yields of lean cuts and higher yields of fat cuts than U. S. No. 1 grade. Yields of lean cuts average 45 to 48 percent and under 45 percent of carcass weight, respectively, for U. S. No. 2 and U. S. No. 3 grades. In addition, the cuts from these grades have more fat remaining after trimming of external fat than do the cuts from U. S. No. 1 grade carcasses. Medium grade carcasses are underfinished and exhibit the lack of firmness and indications of little or no marbling (fat interspersed within the lean) associated with low palatability. Cull grade carcasses are decidedly underfinished and the pork is soft with very little evidence of marbling and is of low palatability.

(b) The standards for grades of sow carcasses apply only to carcasses with the firmness appropriate to their degree of

finish. However, carcasses which are typically soft or oily as a result of feeds producing soft or oily fat may be graded in accordance with the standards provided they are identified as soft or oily along with the grade.

(c) There are differences in the bellies of sow carcasses which are peculiar to the class. Increasing numbers of litters farrowed and raised by a sow results in greater development of mammary tissue and increasing roughness of the belly along the teat line with accompanying seediness. In addition, when pigs were weaned only a short time before the sow was slaughtered the mammary tissue still contains milk and the bellies are commonly termed "wet". However, the smoothness or dryness of bellies has little appreciable effect on the basic grade determining factors and the standards contain no provision for altering the grade of a sow carcass due to these belly characteristics. Rather than forming a part of the basis for grade, it is the intent of the standards that smoothness and dryness of bellies should be a separate consideration used in conjunction with grade, weight, and other factors in evaluating sow carcasses.

(d) Average back fat thickness measurements provide a reliable indication of the yields of cuts and the quality of cuts which determine the grade of sow carcasses. Therefore, indication of a specific range in back fat thickness for each grade forms a part of the standards for grade. Analysis of measurement and cutting data for sow carcasses reveals that yields of cuts are approximately equal in carcasses which are equal in fat thickness but widely different in weight. Thus, to maintain comparable yields in a grade at all weights, back fat thickness requirements for a grade are the same at all weights. This is in contrast to the standards for barrows and gilts, in which the fat thickness for a grade increases for heavier or longer carcasses in order to maintain yields of cuts. With practice in the grading operation, visual estimates of fat thickness may often replace actual measurements with satisfactory accuracy. The following table of measurements provides an objective guide in determining the grade of sow carcasses.

Grade:	Average back fat thickness <sup>1</sup>
U. S. No. 1-----	1.5 to 1.9 inches.
U. S. No. 2-----	1.9 to 2.3 inches.
U. S. No. 3-----	2.3 or more inches.
Medium-----	1.1 to 1.5 inches.
Cull-----	Less than 1.1 inches.

<sup>1</sup> Average of three measurements, skin included, made opposite first and last ribs and the last lumbar vertebra.

(e) In addition to the measurement guides to grade, the standards also include descriptive specifications outlining the characteristics of sow carcasses typical of the minimum degree of finish for each grade. Average back fat thickness is a major factor in grading, but

more accurate appraisal of yields of cuts and quality of cuts is achieved in borderline cases by consideration of thickness of muscling, conformation of the major cuts, uniformity of fleshing and finish, firmness, and indications of marbling. However, in no case may the final grade of a carcass be more than one-half the width of a grade different from that indicated by average back fat thickness.

(f) The standards describe rather typical carcasses of each grade, and no attempt is made to describe the numerous combinations of characteristics that may qualify a carcass for a particular grade.

§ 53.145 *Specifications for official United States standards for grades of sow carcasses—*(a) *U. S. No. 1 grade.* U. S. No. 1 grade sow carcasses have about the minimum degree of finish required to produce pork cuts of acceptable palatability. Meatiness and yield of lean cuts from carcass weight are slightly high. Yield of fat cuts is slightly low. The ratio of total lean and fat to bone is slightly high. Carcasses with the minimum finish required for U. S. No. 1 grade are moderately long and slightly wide in relation to weight. The back and loins are moderately full and thick with a well-rounded appearance. Hams are usually moderately thick and plump and are slightly full in the lower part toward the hock. Bellies are moderately long, slightly thick, and moderately uniform in thickness with a slightly thick belly pocket. Shoulders are slightly thick and full. Carcasses are usually moderately well-balanced and moderately uniform in fleshing and finish. There are moderate quantities of interior fat in the pelvic area, a slightly thin but moderately extensive layer of fat lining the inside surface of the ribs, and a slightly small quantity of feathering, or fat intermingled with the lean between the ribs. The lean is firm. Both exterior and interior fats are firm, white, and of excellent quality. Carcasses with back fat thickness qualifying them for the fatter one-half of the U. S. No. 1 grade but with thin muscling in the major cuts, uneven fleshing and finish, or thick and uneven bellies shall be graded U. S. No. 2. Carcasses with back fat thickness qualifying them for the thinner one-half of the U. S. No. 1 grade but with only a moderately thin and incomplete rib lining, a moderately small quantity of feathering, slightly thin bellies with moderately thin belly pockets, and moderately soft lean and fat shall be graded Medium.

(b) *U. S. No. 2 grade.* U. S. No. 2 grade sow carcasses have a higher degree of finish than the minimum required to produce pork cuts of acceptable palatability. Meatiness and yield of lean cuts from carcass weight are slightly low. Yield of fat cuts is slightly high. The ratio of total lean and fat to bone is moderately high. Carcasses with the



minimum finish required for U. S. No. 2 grade are slightly short and moderately wide in relation to weight. The back and loins are full and thick and are especially full near the edges. Hams are usually thick and plump and are moderately full in the lower part toward the hock. Bellies are slightly short, moderately thick, and rather uniform in thickness with a moderately thick belly pocket. Shoulders are moderately thick and full. Carcasses are usually well-balanced and uniform in fleshing and finish. There are slightly large quantities of interior fat in the pelvic area, a slightly thick and rather extensive layer of fat lining the inside surface of the ribs, and moderate feathering. The lean is firm. Both exterior and interior fats are firm, white, and of excellent quality. Carcasses with back fat thickness qualifying them for the fatter one-half of the U. S. No. 2 grade but with thin muscling in the major cuts, uneven fleshing and finish, or very thick and uneven bellies shall be graded U. S. No. 3. Carcasses with back fat thickness qualifying them for the thinner one-half of the U. S. No. 2 grade but with thick muscling in the major cuts, well-balanced fleshing and uniform finish, and slightly thick bellies shall be graded U. S. No. 1.

(c) *U. S. No. 3 grade.* U. S. No. 3 grade sow carcasses have a decidedly higher degree of finish than the minimum required to produce pork cuts of acceptable palatability. Meatiness and yield of lean cuts from carcass weight are low. Yield of fat cuts is high. The ratio of total lean and fat to bone is high. Carcasses with the minimum finish required for U. S. No. 3 grade are short and wide in relation to weight. The back and loins are very full and thick and are decidedly full at the edges. Hams are usually very thick and plump and are full in the lower part toward the hock due to a thick fat covering. Bellies are short and thick and uniform in thickness with a thick belly pocket. Shoulders are thick and full. Carcasses are usually well-balanced and uniform in fleshing and finish. There are large quantities of interior fat in the pelvic area, a moderately thick and extensive layer of fat lining the inside surface of the ribs, and slightly abundant feathering. The lean is firm. Both exterior and interior fats are firm, white, and of excellent quality. Carcasses with back fat thickness indicative of nearly minimum finish for the U. S. No. 3 grade but with thick muscling in the major cuts, well-balanced fleshing and uniform finish, and moderately thick bellies shall be graded U. S. No. 2.

(d) *Medium grade.* Medium grade sow carcasses have a lower degree of finish than the minimum required to produce pork cuts of acceptable palatability. Yield of lean cuts from carcass weight is moderately high. Yield of fat cuts is moderately low. The ratio of total lean and fat to bone is moderately low. Carcasses with the minimum finish required for Medium grade are long and rather narrow in relation to weight. The back and loins are rather thin, lack fullness, and slope away from the center. Hams are usually slightly thin, lack

plumpness, and taper toward the hock. Bellies are long and moderately thin and are somewhat uneven in thickness with a thin belly pocket. Shoulders are moderately thin and flat. Carcasses tend to be uneven and lack uniformity of fleshing and finish. There are slightly small quantities of interior fat in the pelvic area, a thin and incomplete layer of fat lining the inside surface of the ribs, and only a small quantity of feathering. The lean is moderately soft with little evidence of marbling. Both exterior and interior fats are moderately soft, white to creamy white, and of moderately low quality. Carcasses with back fat thickness qualifying them for the fatter one-half of the Medium grade that are firm and have slightly thick bellies and belly pockets, a slightly thin but moderately extensive rib lining, and a slightly small quantity of feathering shall be graded U. S. No. 1. Carcasses with back fat thickness qualifying them for the thinner one-half of the Medium grade but with little or no rib lining and feathering, thin bellies and very thin belly pockets, and soft lean and fat shall be graded Cull.

(e) *Cull grade.* Cull grade sow carcasses have a decidedly lower degree of finish than the minimum required to produce pork cuts of acceptable palatability. Yield of lean cuts from carcass weight is high. Yield of fat cuts is low. The ratio of total lean and fat to bone is low. Carcasses with the degree of finish typical of the Cull grade are long and narrow in relation to weight. The back and loins are thin and decidedly lacking in fullness with a definite slope toward the sides. Hams are usually thin and flat and taper toward the hock. Bellies are very long and thin and are uneven in thickness with a very thin belly pocket. Shoulders are thin and flat. Carcasses tend to be uneven and lack uniformity of fleshing and finish. There are only small quantities of interior fat in the pelvic area, little or no fat lining the inside surface of the ribs, and scant feathering. The lean is soft and watery with very little evidence of marbling. Both exterior and interior fats are soft, creamy white to white, and of low quality. Carcasses with back fat thickness indicative of nearly maximum finish for the Cull grade that are only moderately soft and have moderately thin bellies and belly pockets, a thin and incomplete rib lining, and a small quantity of feathering shall be graded Medium.

§ 53.154 *Application of standards for grades of slaughter sows.* (a) The standards for grades of slaughter sows are based on (1) differences in yields of lean cuts and of fat cuts and (2) differences in quality of cuts. These characteristics vary rather consistently from one grade to another. The U. S. No. 1 grade has about the minimum degree of finish necessary to produce pork carcasses with quality characteristics indicative of acceptable palatability in the cuts. The U. S. No. 2 grade is overfinished and the U. S. No. 3 grade is decidedly overfinished in relation to the

minimum finish associated with acceptable palatability. Yields of lean cuts are lower and yields of fat cuts are higher, in proportion to the degree of overfinish, in these grades than in the U. S. No. 1 grade. Medium grade sows are underfinished and produce carcasses which are soft and have indications of insufficient quality for acceptably palatable cuts. Cull grade sows are decidedly underfinished and the pork is soft and watery with little or no marbling and low palatability.

(b) The grades for slaughter sows are closely related to the grades for sow carcasses, and the desired objective in grading sows is the accurate prediction of the carcass grade that will be produced. Degree of finish is an important factor in grading, and the expected average back fat thickness of carcasses produced by each grade of slaughter sows forms a part of the standards. The results of study of carcass measurement and cutting data show that carcasses equal in fat thickness are approximately equal in yields of cuts regardless of differences in weight. Therefore, the expected back fat thickness of carcasses from each grade of slaughter sows is the same at all weights. The following table outlines the carcass fat thickness guides for each grade of slaughter sows.

Grade:	Average back fat thickness
U. S. No. 1-----	1.5 to 1.9 inches.
U. S. No. 2-----	1.9 to 2.3 inches.
U. S. No. 3-----	2.3 or more inches.
Medium-----	1.1 to 1.5 inches.
Cull-----	Less than 1.1 inches.

(c) The standards for grades also include descriptive specifications of the characteristics of slaughter sows with the minimum degree of finish for each grade. Application of the standards requires an accurate appraisal of these live animal characteristics indicative of carcass finish and grade. No attempt is made to describe in the standards the many combinations of characteristics which may qualify an animal for a particular grade, and sound judgment is required to appropriately analyze varying combinations.

(d) Slaughter sows that have produced several litters of pigs may show considerable roughness along the underline due to extensive development of mammary tissue. In addition, sows from which pigs were weaned only a short time prior to grading may show evidence that the mammary tissue is still active in milk production and not completely dry. Since smoothness and dryness of the underline have little effect on the basic grade determining factors, no provision is made in the standards for altering the grade of slaughter sows due to differences in these characteristics. It is recognized that the value determining factors to be considered in marketing sows include dryness and smoothness as well as such other factors as weight, degree of finish, quality, and fill. However, consideration of all such factors in determining grade would require a complicated system with a great number of grades in

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order to make each grade sufficiently restrictive to be practical and useful. Therefore, the grades outlined in these standards identify differences in slaughter sows with respect to yields of cuts and quality. They were designed as practical aids in evaluating slaughter sows when used in conjunction with other factors such as weight, fill, smoothness, and dryness.

§ 53.155 *Specifications for official United States standards for grades of slaughter sows*—(a) *U. S. No. 1 grade.* U. S. No. 1 grade slaughter sows have an intermediate degree of finish near the minimum required to produce pork cuts of acceptable palatability. Sows with the minimum finish for U. S. No. 1 grade are moderately long and slightly wide in relation to weight. Width of body is rather uniform from top to bottom and from front to rear. The back, from side to side, is moderately full and thick with a well-rounded appearance and blends smoothly into the sides. The sides are moderately long and slightly thick; the flanks are slightly thick and full. Depth at the rear flank may be slightly less than depth at the fore flank. Hams are usually moderately thick and full with a slightly thick covering of fat. Jowls are usually moderately thick and full but appear trim. Sows in this grade produce U. S. No. 1 grade carcasses.

(b) *U. S. No. 2 grade.* U. S. No. 2 grade slaughter sows have a moderately high degree of finish that is somewhat greater than the minimum required to produce pork cuts of acceptable palatability. Sows with the minimum finish for the U. S. No. 2 grade are slightly short and moderately wide in relation to weight. Width of body is often greater over the top than at the underline and tends to be slightly greater through the shoulders than through the hams. The back, from side to side, is full and thick and appears slightly flat with a noticeable break into the sides. The sides are slightly short and moderately thick; the flanks are moderately thick and full. Depth at the rear flank is nearly equal

to depth at the fore flank. Hams are usually thick and full with a moderately thick covering of fat, especially over the lower part. Jowls are usually full and thick, and the neck appears rather short. Sows in this grade produce U. S. No. 2 grade carcasses.

(c) *U. S. No. 3 grade.* U. S. No. 3 grade slaughter sows have a high degree of finish that is considerably greater than the minimum required to produce pork cuts of acceptable palatability. Sows with the minimum finish for U. S. No. 3 grade are short and wide in relation to weight. Width of body is often somewhat greater over the top than at the underline and tends to be greater through the shoulders than through the hams. The back, from side to side, is very full and thick and appears nearly flat with a pronounced break into the sides. The sides are short and thick; the flanks are thick and full. Depth at the rear flank is equal to depth at the fore flank. Hams are usually very thick and full with a thick covering of fat especially over the lower part. Jowls are usually very full and thick, and the neck appears short. Sows of this grade produce U. S. No. 3 grade carcasses.

(d) *Medium grade.* Medium grade slaughter sows have a low degree of finish which is somewhat less than the minimum required to produce pork cuts of acceptable palatability. Sows with the minimum finish for Medium grade are long and moderately narrow in relation to weight. Width of body is often less over the top than at the underline and tends to be slightly less through the shoulders than through the hams. The back, from side to side, is moderately thin and appears rather peaked at the center with a distinct slope toward the sides. The hips are moderately prominent. The sides are long and moderately thin; the flanks are thin. Depth at the rear flank is less than depth at the fore flank. Hams are usually moderately thin and flat and taper toward the shank. Jowls are usually slightly thin and flat, and the neck appears rather long. Sows in this grade produce Medium grade carcasses.

(e) *Cull grade.* Cull grade slaughter sows have a very low degree of finish which is considerably lower than that required to produce pork cuts of acceptable palatability. Sows with the finish typical of the Cull grade are long and narrow in relation to weight. Width of body is often somewhat less over the top than at the underline and tends to be less through the shoulders than through the hams. The back, from side to side, is thin and lacks fullness and is peaked at the center with a decided slope toward the sides. The hips are prominent. The sides are very long and thin; the flanks are very thin. Depth at the rear flank is considerably less than depth at the fore flank. Hams are usually thin and flat with a definite taper toward the shank. Jowls are usually thin and flat, and the neck appears long. Sows in this grade produce Cull grade carcasses.

The heading for Part 53 of Title 7, Code of Federal Regulations, is changed to read as set forth above.

(Secs. 203, 205, 60 Stat. 1087, 69 Stat. 553; 7 U. S. C. 1622, 1624)

Since the foregoing standards provide a basis for market news reporting and certain statistical work of the Department and should be made effective as soon as possible to be of maximum benefit in connection therewith, and since the use of the standards will not be mandatory under the Agricultural Marketing Act upon any members of the public, good cause is found under section 4 of the Administrative Procedure Act (5 U. S. C. 1003) for making the standards effective less than 30 days after publication in the FEDERAL REGISTER.

The foregoing standards shall become effective September 1, 1956.

Done at Washington, D. C., this 15th day of August 1956.

[SEAL]

ROY W. LENNARTSON,  
Deputy Administrator.







